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Deformation of a hydrophobic ferrofluid droplet suspended in a viscous medium under uniform magnetic fields YURIKO RENARDY, SHAHRIAR AFKHAMI, MICHAEL RENARDY, JUDY RIFFLE, Virginia Tech, ANNETTE TYLER, TIM ST. PIERRE, ROBERT WOODWARD, The University of Western Australia — The effect of applied magnetic fields on the deformation of a biocompatible hydrophobic ferrofluid drop suspended in a viscous medium is investigated numerically and compared with experimental data. At high magnetic fields, experimental drop shapes deviate from numerical results when a constant surface tension value is used. One hypothesis for the difference is the dependence of interfacial tension on the magnetic field in the experimental data. This idea is investigated computationally by varying the interfacial tension as a function of the applied magnetic field, and by comparing the drop shapes with experimental data until matched.

Yuriko Renardy
Virginia Tech

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